

same conclusion.\* The resemblance of the Spirifers of this Oriskany sandstone to those of the Lower Devonian of the Eifel was the chief motive assigned by M. de Verneuil for his view; and the overlying Scholarie grit, No. 10, was classed as Devonian because it contained a species of *Asterolepis*. On the other hand, Prof. Hall adduces many fossils from Nos. 10 and 12 which resemble more nearly the Ludlow group of Murchison than any other European type; and he thinks, therefore, that those groups may be "Upper Silurian." Although the Oriskany sandstone is no more than 30 feet thick in New York, it is sometimes 300 feet thick in Pennsylvania and Virginia, where, together with other primary or paleozoic strata, it has been well studied by Professors W. B. and H. D. Rogers.

The upper divisions (from the Catskill to the Genesee groups, inclusive, Nos. 1 to 4) consist of arenaceous and shaly beds, and may have been of littoral origin. They vary greatly in thickness, and few of them can be traced into the "far west;" whereas the calcareous groups, Nos. 8 and 9, although in New York they have seldom a united thickness of more than 50 feet, are observed to constitute an almost continuous coral-reef over an area of not less than 500,000 square miles, from the State of New York to the Mississippi, and between Lakes Huron and Michigan, in the north, and the Ohio River and Tennessee in the south. In the Western States they are represented by the upper part of what is termed "the Cliff Limestone." There is a grand display of this calcareous formation at the falls or rapids of the Ohio River at Louisville in Kentucky, where it much resembles a modern coral-reef. A wide extent of surface is exposed in a series of horizontal ledges, at all seasons when the water is not high; and, the softer parts of the stone having decomposed and wasted away, the harder calcareous corals stand out in relief, their erect stems sending out branches precisely as when they were living. Among other species I observed large masses, not less than 5 feet in diameter, of *Favosites gothlandica*, with its beautiful honeycomb structure well displayed, and, by the side of it, the *Favistella*, combining a similar honeycombed form with the star of the *Astræa*. There was also the cup-shaped *Cyathophyllum*, and the delicate network of the *Fenestella*, and that elegant and well-known European species of fossil, called "the chain coral," *Catenipora escharoides* (see fig. 579, p. 435), with a profusion of others. These coralline forms were mingled with the joints, stems, and occasionally the heads of lily encrinites. Although hundreds of fine specimens have been detached from these rocks to enrich the museums of Europe and America, another crop is constantly working its way out, under the action of the stream, and of the sun and rain in the warm season when the channel is laid dry. The waters of the Ohio, when I visited the spot in April, 1846, were more than 40 feet below their highest level, and 20 feet above their lowest, so that large spaces of bare rock were exposed to view.†

\* De Verneuil, Bulletin, 4, 678, 1847. D. Sharpe, Quart. Journ. Geol. Soc. vol iv. pp. 145, 1847.

† Lyell's Second Visit to the United States, vol ii. p. 277.